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Self locking wall bracket

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ABSTRACT

A bracket to be attached to a brick or other block constructed wall to support an article. The bracket has a member to engage the upper edge of a brick and to extend below the lower edge of the brick. A load support member engages
5 adjacent the lower edge of the brick and also applies a downward force on the member to lock the member to the wall.

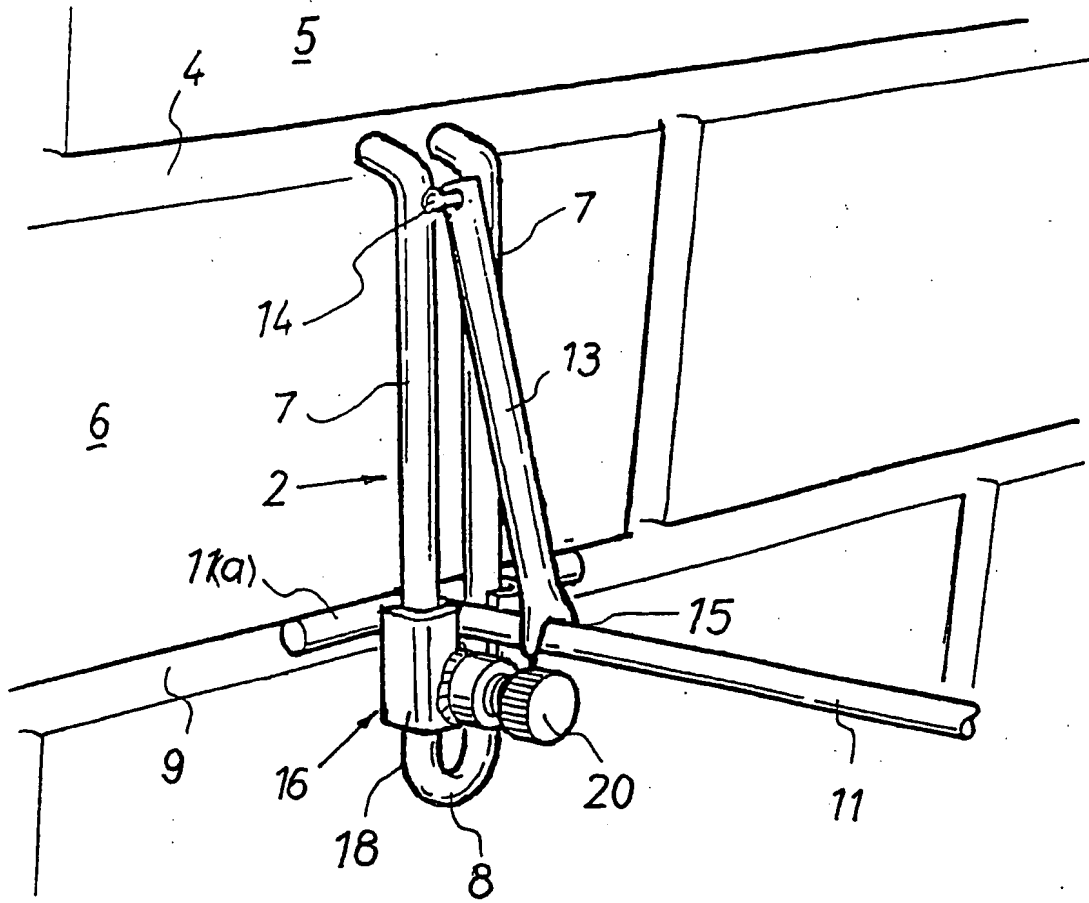


Fig 3

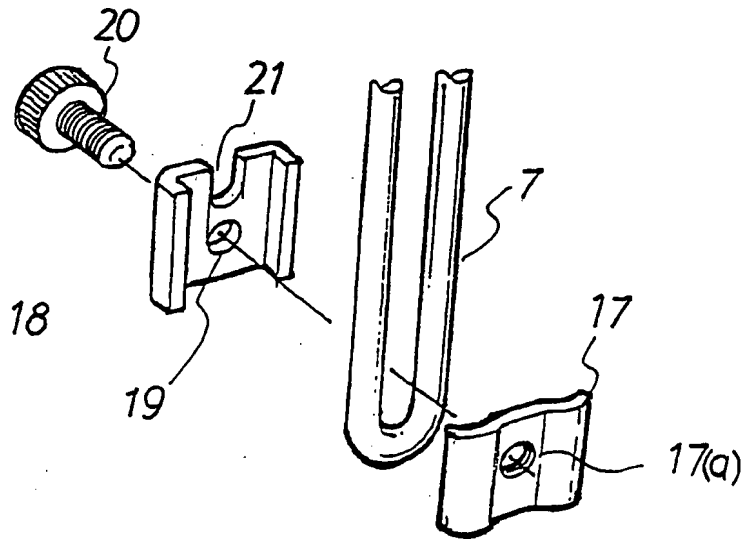
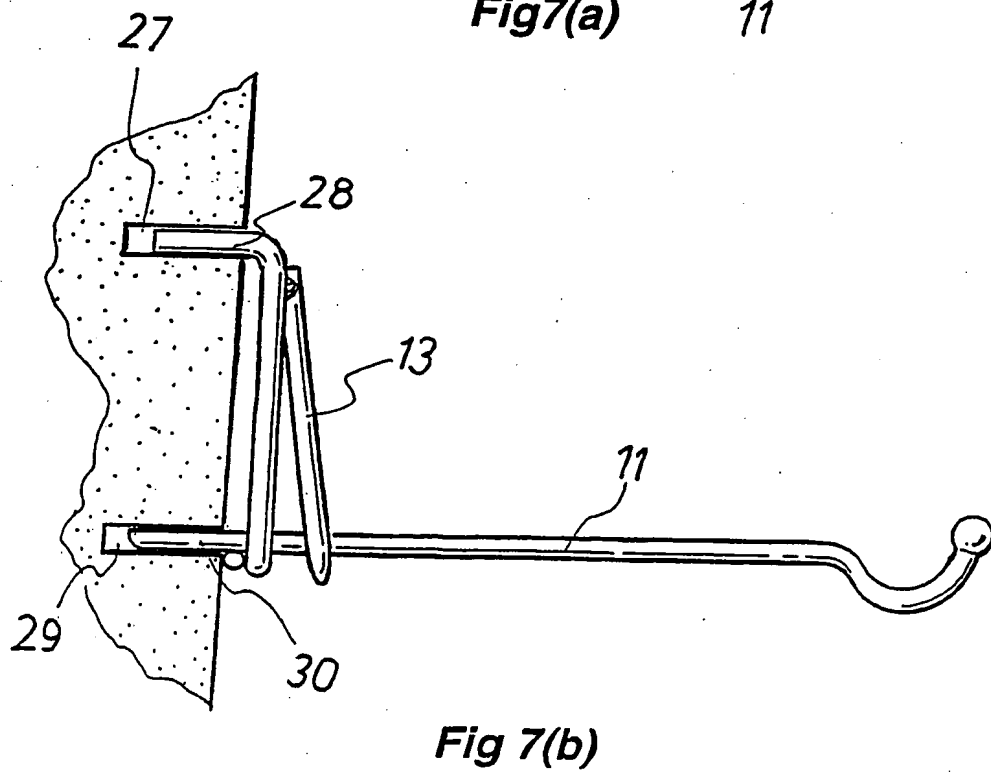
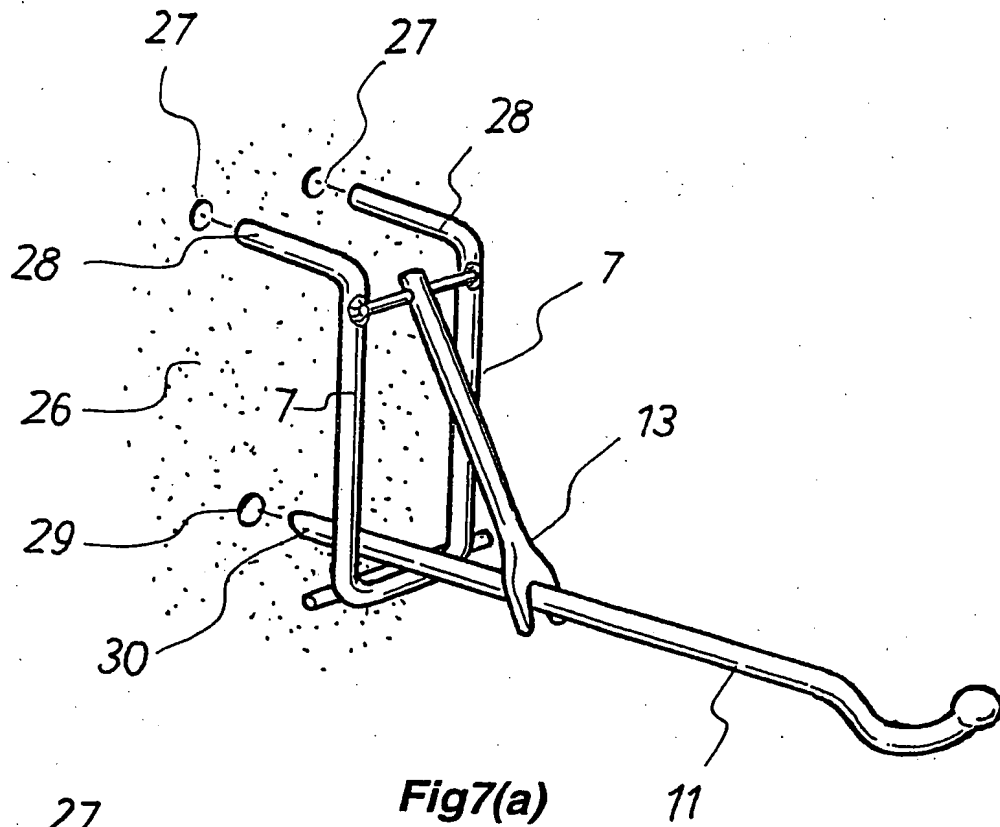
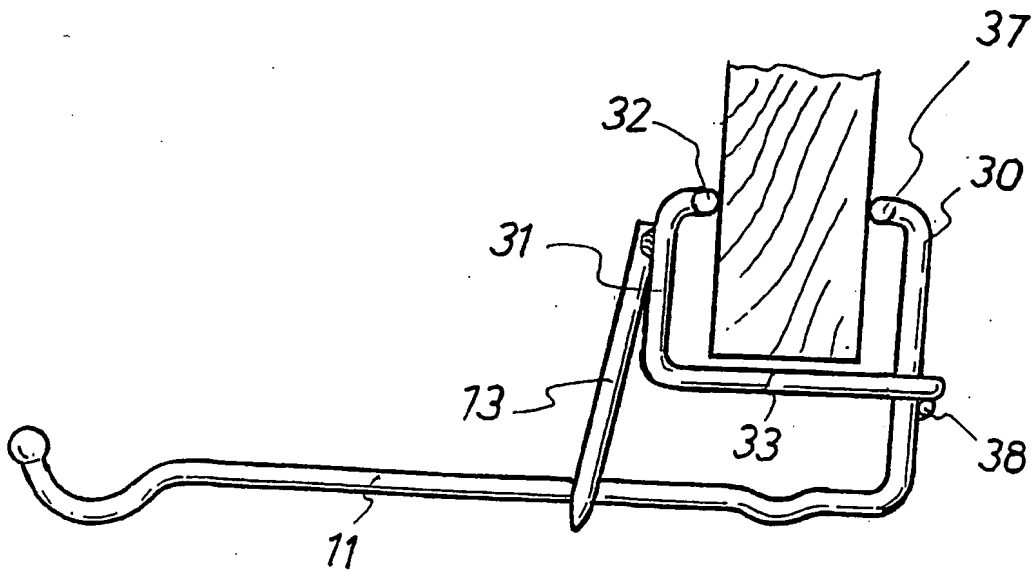
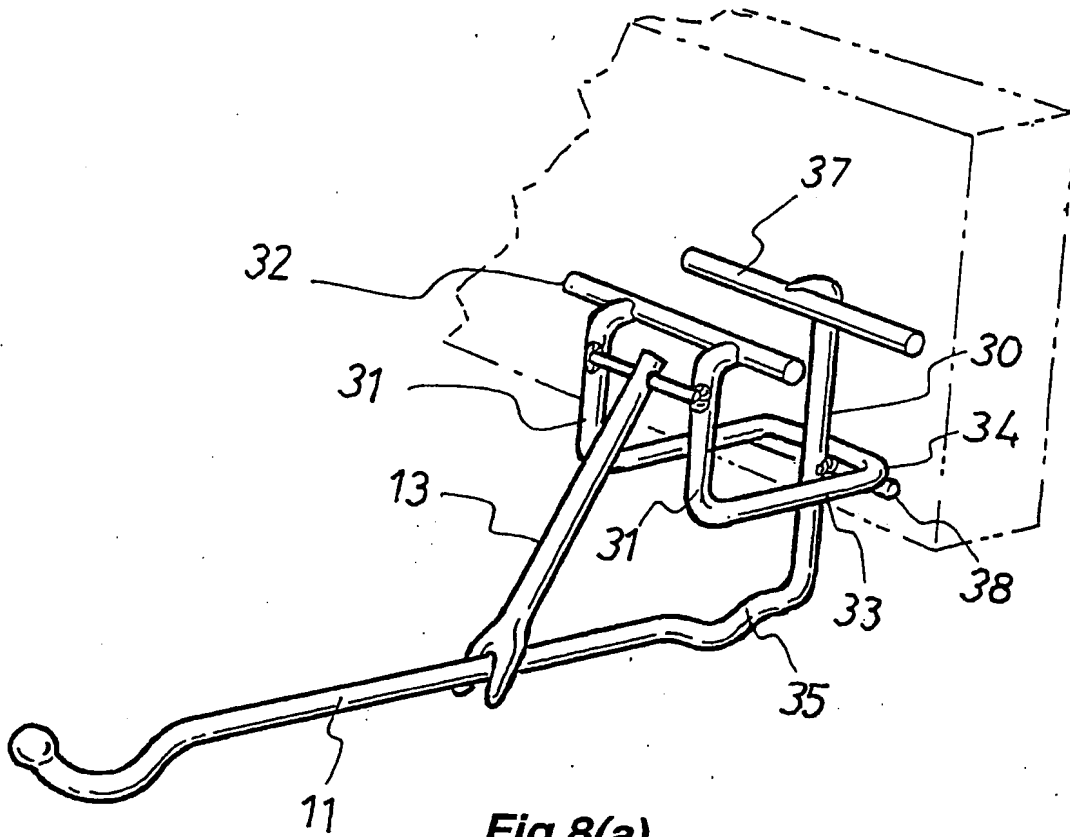


Fig 4





This invention relates to a self locking wall bracket, more particularly to a wall bracket adapted to be attached to a wall having spaced rebates or notches in a wall formed of bricks or other block materials such as Besser blocks.

5 It is often desirable to support items from a brick or block constructed wall and it has been the practice to drill holes and use an expanding bolt or the like in the hole to attach a bracket on which a pot plant, or other object can be hung. However while this is satisfactory in many respects if the bracket has to be removed or shifted an unsightly bolt or fixture remains which is impossible to hide.

10 In an attempt to overcome this problem attempts have been made to attach a bracket or other member to a brick or block wall by use of members which engage the exposed edges of one or more bricks of a brick wall.

15 Examples of two such clamps or attachments are shown in AU 691156 and AU 692749 and while these are satisfactory in many respects they are often difficult to assemble and support the article. These require a downward force to be applied to a member extending from the wall to ensure that the bracket is securely attached to the wall. Thus it requires for the person assembling the bracket to position the components of the bracket and maintain a downward force on the end of the support member until the load in the form of a pot plant or other article is hung from the end of the member. If the downward force is released the bracket can disassemble and fall from the wall before the load is applied to the end of the extending member.

20 It is an object of this invention to provide a wall bracket to be attached to a brick or block constructed wall which on positioning on the wall is locked in position irrespective of whether a load is applied to the extending member to support the load.

25 Thus there is provided in one form of the invention a bracket to be attached to a brick or other block constructed wall, said bracket including an attachment member to engage the upper surface of a brick and extend downwardly to

adjacent the lower surface of said brick, a load support member engaging the lower surface of said brick and also adapted to provide a downward force on said attachment member, and a locking member acting between said attachment member and said bracket member to provide a downward force on
5 said load support member to lock the bracket in position.

In a preferred form of the invention the attachment member has legs or fingers to engage the upper surface of the brick in the grout rebate area, and is of U shape depending down the face of the brick, the bottom of the U being at or adjacent the lower rebate area of the brick.

10 Preferably the load support member has extending legs or fingers to engage in the lower rebate area and to bear against the U shaped portion of the attachment member. Preferably the locking means is a locking member pivoted to the upper portion of the attachment member and has a shaped portion to engage on the load support member.

15 Hence in use the attachment member is positioned with its legs or fingers engaging in the desired rebate area. The load support member is then positioned through the U shaped portion of the attachment member with its legs or fingers engaging in the lower rebate area. The load support member is then pressed downwardly against the U shaped portion of the attachment
20 member with the legs engaging on the undersurface of the brick, the locking member is then positioned on the load support member to maintain the downward pressure on the attachment member with the legs of the load support member pressing against the lower surface of the brick. The bracket is then locked in position.

25 In order to more fully describe the invention reference will now be made to the accompanying drawings in which:-

Figure 1 is a perspective view of a first embodiment of the invention,

Figure 2 is a side elevation thereof,

Figure 3 is a perspective view of a second form of the invention,

30 Figure 4 is an exploded view of portion of Figure 3,

Figure 5 is a detail sectional view of a further embodiment,
 Figures 6(a) and (b) show the detail of a further embodiment,
 Figures 7(a) and 7(b) show the bracket attached to a wall or post,
 Figures 8(a) and 8(b) show the bracket attached to an overhead beam, and
 5 Figure 9 shows a further embodiment.

Referring firstly to Figure 1 the bracket 1 includes an attachment member 2
 having a pair of arms or fingers 3 to engage in the rebate 4 between two bricks
 5 and 6 and rest on the upper surface of the lower brick 5. The attachment
 member 2 which in this embodiment is formed in U-shape having two legs 7,
 10 extends downwardly over the face of the brick to have the bend 8 of the U at
 the rebate 9 between brick 5 and the lower brick 10. As shown the arms or
 fingers 3 are formed as extensions of the respective leg and extend along the
 rebate 4.

The bracket also includes a load support member 11 to engage in the rebate
 15 9, a suitable hook or the like being provided at its distal end. The support
 member at its inner end has an extension piece to engage in the rebate 9 and
 to bear in the lower surface of the brick 7. To lock the bracket in position the
 bracket includes a locking member 13 pivoted on pivot pin 14 on the upper
 portion of the attachment member 2 and having a bifurcated end 15 which
 20 engages the support arm 11.

Thus to position and lock the bracket on a brick wall the locking arm can be
 positioned through the legs the attachment member and the arms 3 of the
 attachment member engaged in the rebate between two bricks. The extension
 11(a) of the load support member is positioned in the next lowest rebate and
 25 the locking member positioned on the load support member. The load support
 member is then pressed downwardly until the member is generally horizontal.
 The locking member is then positioned on the load support member and the
 bracket is locked in position due to the load member acting on the bottom of
 the attachment member to pull it down till the arms engage the upper surface
 30 of the brick and the extension 11(a) engages the lower surface of the brick.

The bracket is thus clamped in position and the load support arm can then

easily support a pot plant or the like. It is noted that if the grout in the rebate does not provide sufficient space for the arms or the extension, this can easily be overcome by the drilling of small holes. By then pulling the lever down it is locked in position. This method of drilling three holes can be used to attach
 5 the bracket to any wall, surface or post as later described.

While the arms and the extension are shown as extending parallel to the brick face to provide adequate pressure area for the load the legs can be bent toward the brick face and the load support arm may be extended to the brick face. A small amount of grout can be removed, for example by drilling into the
 10 grout, to permit the legs and load support arm to enter between the bricks.

Figure 3 illustrates a further form of the invention with like parts having like numbers. In this example the legs 7 of the attachment member are turned to the brick wall with the ends 16 engaging the upper surface of the brick. In this embodiment the bracket is adjustable to accommodate for various sized
 15 bricks, and as shown the legs extend over the brick 10.

In this embodiment the support arm 11 engages an adjustably positioned clamp 16 comprising a threaded clamp plate 17 having a threaded hole 17(a), a notched clamp plate 18 having a hole 19 and a threaded screw or stud 20. The bracket is positioned on the wall with the ends 7(a) in the rebate 4, the
 20 support arm positioned between the legs 7 and the clamp 16 is then slid up the legs until the notch 21 in the notched clamp plate engages the support arm 11 with the support arm in a horizontal position. The stud 20 is then tightened to secure the clamp 16 in position and the locking member locks the bracket.

In an alternate form a U-shaped spacer may be positioned on the bottom of the
 25 legs to compensate for brick size.

Figure 5 illustrates a further form of the invention in which the support arm 11 is extended and has a slightly upturned end 22 to enter a small hole which is drilled in the mortar against the lower surface of the brick. In this instance while the Figure shows that the extension 11(a) is attached to the load arm 11,
 30 the extension may be omitted and the load arm positioned against the wall by

the end 22 entering the drilled hole.

While the above embodiments have been described as a bracket from which loads may be suspended it is to be realised that the bracket can be used for other purposes, such as to support shelving. However while it is desired to ensure that the load arm extends horizontally, this is not always possible to achieve and Figures 6(a) and (b) illustrate one way in which the load arm can be adjusted to ensure that it is level.

A sleeve 23 is positioned over the end of the legs 7, the sleeve having a threaded hole 24 into which a stud 25 is screwed. The end of the stud 25 is tapered and bears against the end 8 of the legs 7. The sleeve bears at its upper end on the load arm 11, and thus it can be seen that by adjustment of the stud the angular position of the load arm 11 can be varied, the load arm pivoting about the extensions 11(a) to ensure that the load arm is horizontal.

Figures 7(a) and 7(b) show a further use of the invention, the bracket being attached to any wall or post 26. In this embodiment two holes 27 are drilled to take the ends 28 of the legs 7. A further hole 29 is drilled to take the end 30 of the support arm 11. The bracket is then clamped as above described in the previous embodiments.

Figures 8(a) and 8(b) show a further embodiment of the invention showing how the invention can be used to provide means for hanging an item such as a pot plant from a beam or roof truss or the like. In this embodiment the legs 31 have a first clamp bar 32 attached to the ends of the legs, the legs 31 also having a horizontal portion 33 to extend to the other side of the beam or rafter, the ends of the portions being joined by member 34. The load arm 11 has extension 35 to pass under the beam or rafter and has vertical portion 36 ending in horizontal second clamp bar 37. A pivot support bar 38 is welded to the vertical portion 16. A hinge bar 39 is welded to the legs 31, the locking member 13 being pivoted to the hinge bar 39. When the two portions are assembled as shown in the drawings and positioned on the beam or rafter, the locking arm is pushed down along the load arm, and in so doing the clamp member 32 is pushed against the beam. At the same time the downward

pressure on the load arm forces the clamp member 37 against the beam or rafter, the bracket thus being firmly clamped to the beam or rafter.

As shown in the Figure 9 the tilt lock bracket is formed as in the previous embodiments and as shown in Figure 3 having parallel arms 7 and intumed
 5 ends 16 to engage in either holes in the wall or recesses between the bricks or blocks forming the wall.

In this embodiment the load bearing arm 40 can be adjustably positioned and locked on the parallel arms 7 by two members sliding and locking on the arms 7, a bottom adjuster 41 and a top locking member 42. The bottom adjuster 41
 10 is a plate like member, preferably of metal, having a pair of holes 43, an upturned portion 44 having a central notch 45.

The holes 43 are only slightly larger in diameter than the diameter of the arms 7, the holes having sharp edges as a result of the holes being drilled or stamped in the metal adjuster. Thus when the portion of the adjuster is normal
 15 to the arms 7 the adjuster can be slid along the arms. However when the adjuster is tilted, the adjuster frictionally locks on the arms. The adjuster is slid along the arms to the desired position the notch engaging in the arm of the loading bearing arm when in use.

Similarly the top member is formed with a pair of holes 46 and a down turned portion 47 with a notch 48. The holes 46 are as described above in respect of
 20 holes 43, and the notch 48 engages the load bearing arm 40 when in use.

The load bearing arm has a cross member 49 welded thereto on an extending portion 50 the portion 50 can be positioned in a recess or hole in the wall with the ends of the cross member engaging the wall.

25 In use the bottom adjuster is positioned over the arms and the cross member is then inserted with the arm extending from the arms, the top lock member is positioned over the arms. The assembled unit is then presented to the wall the extensions being inserted in the recesses or holes in the wall and the extension 50 inserted into its corresponding hole or recess. The bottom

adjuster is then slid up to the desired position and the top locking member slid down so that the respective notches engage the load bearing arm. In this the assembly is positioned and locked on the wall.

5 The bracket can be used for supporting items such pot plants on the end of the wall. Or if the arm is very short can be used for supporting shelves, signs and the like. It is noted the locking effect increases with added weight on the locking arm.

10 While a straight hanging rod or arm is described it is to be realised other designs are included, such as U-shaped on which to hang two objects, or circular to receive a pot plant, or T-shaped to again support a load at each end of the T.

Although various forms of the invention have been described in some detail it is to be realised that the invention is not limited thereto but can include variations and modifications falling within the spirit and scope of the invention.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A bracket to be attached to a brick or other block constructed wall, said bracket including an attachment member to engage the upper surface of a brick and extend downwardly to adjacent the lower surface of said brick, a
5 load support member engaging the lower surface of said brick and also adapted to provide a downward force on said attachment member, and a locking member acting between said attachment member and said bracket member to provide a downward force on said load support member to lock the bracket in position.
- 10 2. A bracket as defined in claim 1 wherein the attachment member has legs or fingers to engage the upper surface of the brick in the grout rebate area, and is of U shape depending down the face of the brick, the bottom of the U being at or adjacent the lower rebate area of the brick.
- 15 3. A bracket as defined claim 1 or claim 2 wherein the load support member has extending legs or fingers to engage in the lower rebate area and to bear against the U shaped portion of the attachment member.
- 20 4. A bracket as defined in any one of the preceding claims wherein the locking means is a locking member pivoted to the upper portion of the attachment member and has a shaped portion to engage on the load support member.
5. A bracket as defined in claim 1 or claim 2 wherein an adjustable stop is provided on the attachment member whereby the load support member bears on the adjustable stop.
- 25 6. A bracket as defined in claim 5 wherein the adjustable stop is a member having a hole or holes there through to slide on the attachment member, the dimensions of the hole or holes being such that on tilting the adjustable stop the stop is locked to the attachment member.

7. A bracket as defined in claim 6 wherein the locking member is a plate having a hole or holes so that the locking member can slide on the attachment member, the locking member positioned on the attachment member above the load support arm, the locking member being such that on being positioned against the load support member and tilting of the locking member the locking member applies a downward force on the load support member.
8. A bracket as defined in claim 5 wherein the adjustable stop slidably engages the attachment member, an adjustable screw clamping the adjustable stop to the attachment member.
9. A bracket to be attached to a wall, said bracket including an attachment member to engage in a hole or holes in the wall and extend downwardly of the wall, a load support member engaging in a further hole in the wall spaced downwardly from the first said hole or holes and also adapted to provide a downward force on said attachment member, and a locking member acting between said attachment member and said bracket member to provide a downward force on said load support member to lock the bracket in position.
10. A bracket to be attached to structure such as an exposed beam, said bracket including an attachment member of L shape to engage a side surface of the beam and extend across under the beam, a load support member having an extending arm to extend beneath the beam and a vertical portion shaped to engage the opposite side of the beam, the load support member on the vertical portion having an abutment on which the attachment member engages whereby downward force on the load support member forces the attachment member and the vertical portion into engagement with the respective sides of the beam, and a locking member pivoted to the attachment member at its upper end and engaging the load support member to provide a downward force on the load support member.

11. A bracket to support a load substantially as hereinbefore described with reference to the accompanying drawings.

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